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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,269	01/14/2004	Jimmie Earl DeWitt JR.	AUS920030549US1	4136
35525	7590	06/12/2007	EXAMINER	
IBM CORP. (YA)			LAI, VINCENT	
C/O YEE & ASSOCIATES PC				
P.O. BOX 802333			ART UNIT	PAPER NUMBER
DALLAS, TX 75380			2181	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/757,269	Applicant(s) DEWITT ET AL.	
	Examiner Vincent Lai	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3-30-2007</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
|---|--|

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 1/14/2004 and 7/1/2005 was considered by the examiner.

Response to Arguments

2. In view of the Appeal Brief filed on 25 July 2007, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 7-9, 14-19, 21-23, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipate by Holmberg (U.S. Patent # 6,233,679 B1).

It is noted that the rejection of claim 9 (and subsequently) 23 use official notice as part of the rejection being made.

As per **claim 1**, Holmberg discloses a method in a data processing system for processing instructions, the method comprising:

responsive to receiving an instruction at a processor in the data processing system (See column 3, lines 46-48: Instructions are fetched by the processor and thus will receive instructions after fetching), determining whether an indicator is associated with the instruction, wherein the indicator identifies the instruction as one that is to be monitored by a performance monitor unit (See column 5, lines 14-21: Counters count when encountering a type of branch instruction and thus must be able to identify and determine when such events occurs);

enabling counting, by the processor, of each first event associated with a primary metric of the execution of the instruction if the indicator is associated with the

instruction, wherein the processor autonomically increments the count of the first events associated with the primary metric of the execution of the instruction in a first hardware counter (See column 5, lines 14-21: Counters count when encountering a type of branch instruction);

determining if the count of the first events associated with the primary metric of the execution of the instruction stored in the first hardware counter satisfies a predetermined relationship with a threshold value (See column 5, lines 28-34: There is a preset threshold value which is used for comparisons); and

enabling counting, by the processor, of each second event associated with a secondary metric of the execution of a portion of code associated with the instruction, wherein the processor autonomically increments the count of the second events associated with the secondary metric of the execution of a portion of code associated with the instruction in a second hardware counter (See column 4, line 64- column 5, line 2: Two types of statistics are counted).

As per **claim 2**, Holmberg discloses wherein the instruction is received in an instruction cache in the processor (See figure 1: A cache is used with the program memory, which is where instructions are fetched from).

As per **claim 3**, Holmberg discloses wherein the indicator is stored in a performance instrumentation shadow cache (See column 4, lines 48-55: The MAR is a shadow cache) and wherein the processor checks the performance instrumentation

shadow cache to determine whether the indicator is associated with the instructions (See column 5, lines 14-21: Counters count when encountering a type of branch instruction and thus must be able to identify and determine when such events occurs).

As per **claim 4**, Holmberg discloses wherein the instruction is received in a bundle by an instruction cache in the processor (See column 5, lines 44-51: Instructions are scanned) and wherein the indicator comprises at least one spare bit in a field in the bundle (See figure 1 and column 3, lines 63-65 and column 5, lines 3-7: A branch prediction bit is used and a special parameter is taught to indicate where a branch may occur).

As per **claim 5**, Holmberg discloses wherein the indicator is a separate instruction (See column 5, lines 14-21: The indicator is a specific type of branch instruction).

As per **claim 7**, Holmberg discloses wherein the determining whether an indicator is associated with the instruction comprises:

determining, by an instruction cache, whether the indicator is present in a field within the instruction (See column 5, lines 14-21: Counters count when encountering a type of branch instruction and thus must be able to identify and determine when such events occurs).

As per **claim 8**, Holmberg teaches the method of claim 1, wherein the enabling the counting of first events includes sending a first signal to the performance monitor unit, wherein the performance monitor unit counts each first event associated with execution of the instruction using the first hardware counter, and wherein enabling the counting of second events includes sending a second signal to the performance monitor unit, wherein the performance monitor unit counts each second event associated with execution of a portion of code associated with the instruction using the second hardware counter (See column 4, line 47- column 5, line 2: Two types of statistics are counted and recorded).

As per **claim 9**, Holmberg discloses the method of claim 1, wherein the first hardware counter is a combined counter value hardware counter that stores a combined count from a plurality of other hardware counters (Examiner is using Official Notice to argue that a combined counter value hardware counter is not novel. See column 4, line 65- column 5, line 2 and claims 4, 5, 12, and 13: The use of counters is not a novel concept. Holmberg already teaches the use of two counters and does not indicate any disadvantages of using more than two. One having ordinary skill in the art would recognize the additions of multiple counters would not debilate the invention taught by Holmberg. Holmberg also teach that the totals are important branch statistics to track. One having ordinary skill in the art would recognize that out of the set of the 3 metrics, only two are necessary as the third can be evaluated through simple mathematics. The fact that Holmberg teaches the necessity of totals is indicative of its usefulness and thus

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one having ordinary skill in the art would recognize that having an additional counter, if desired, can be done).

As per **claim 14**, Holmberg discloses the method of claim 1, wherein the first metric is different from the second metric (See column 4, line 64- column 5, line 2: Two types of statistics are counted which are different).

As per **claim 15-19, 21-23, and 28**, the claims are directed to similar limitations as claims 1-5, 7-9, and 14, with the exception that the claims are directed to a computer program product in a recordable-type computer readable medium for processing instructions instead of a method in a data processing system for processing instructions.

As per **claim 29**, the claim is directed to similar limitations as claim 1, with the exception that the claims are directed to an apparatus for processing instructions instead of a method in a data processing system for processing instructions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 10-13, 20, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holmberg (U.S. Patent # 6,233,679 B1) in view of Yates et al (U.S. Patent # 6,549,959), herein referred to as Yates.

As per **claim 6**, Holmberg teaches the method of claim 1.

Holmberg does not teach modules.

Yates teaches wherein an event in the events includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, an exit from a function, a start of input/output, a completion of input/output, and the execution of the instruction (See figures 3B-3F: Code of modules, subroutines, functions, and other calls).

Modules are well known in the art and have been used in basic computer programming. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Holmberg with Yates to encompass modules. Holmberg already recognizes that computer have periodic and recurrent sets of instructions (See column 2, lines 30-36). Modules would thus be able to exist within the basic framework of the invention taught by Holmberg. Yates is used to show how modules are used. One having ordinary skill in the art would recognize the usefulness of modules and apply them to the teachings of Holmberg.

As per **claim 10**, Holmberg teaches the method of claim 1.

Holmberg does not teach interrupts.

Yates teaches generating an interrupt in response to a determination that the count of the first events meets or excess the threshold value (See column 55, lines 58-60); and

sending the interrupt to an interrupt handler of a performance monitoring application (See column 5, lines 11-13: This has to be inherently done with a interception else nothing would happen);

wherein the interrupt handler of the performance monitoring application initiates counting of each event associated with a metric of the execution of a portion of code associated with the instruction (See column 67, lines 36-45: The abort will affect the profiler).

Yates does not teach a second counter thus no secondary metric, or counting of a second event.

Holmberg does teach wherein enabling counting, by the processor, of each second event associated with a secondary metric (See column 5, lines 35-44: Several metrics are listed) of the execution of a portion of code associated with the instruction includes.

It would been obvious to a person having ordinary skill in the art at the time the invention was made to modify the teachings of Holmberg with Yates to teach interrupts because Holmberg already teaches the need to perform updates (See figure 3a and 3b) and the need to stop functionality (See column 2, lines 34-40). One having ordinary skill in the art would recognize that interrupts would be able to perform such events and thus

would use interrupts. Yates teaches the basic functionality interrupts which can be applied to the teachings of Holmberg.

As per **claim 11**, Holmberg teaches the method of claim 10.

Holmberg does not teach interrupts.

Yates teaches wherein the interrupt handler instruments other instructions in the portion of code associated with the instruction to include the indicator (See column 55, lines 58-60).

It would be obvious to a person having ordinary skill in the art at the time the invention was made to modify the teachings of Holmberg with Yates to teach interrupts because Holmberg already teaches the need to perform updates (See figure 3a and 3b) and the need to stop functionality (See column 2, lines 34-40). One having ordinary skill in the art would recognize that interrupts would be able to perform such events and thus would use interrupts. Yates teaches the basic functionality interrupts which can be applied to the teachings of Holmberg.

As per **claim 12**, Holmberg teaches the method of claim 10.

Holmberg does not teach interrupts.

Yates teaches wherein the interrupt handler instruments other instructions in the portion of code associated with the instruction to include the indicator (See column 55, lines 58-60).

Yates does not teach a second counter.

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Holmberg does teach a second counter (See figure 2).

It would be obvious to a person having ordinary skill in the art at the time the invention was made to modify the teachings of Yates with Holmberg because utilizing a second counter would allow greater ability to track data and thus better predictions can be made. More data means more informed decisions can be made and thus accuracy is likely to be increased. In the case of the presence of a second counter, it would be obvious to implement functionality of a first counter with a second counter.

It would be obvious to a person having ordinary skill in the art at the time the invention was made to modify the teachings of Holmberg with Yates to teach interrupts because Holmberg already teaches the need to perform updates (See figure 3a and 3b) and the need to stop functionality (See column 2, lines 34-40). One having ordinary skill in the art would recognize that interrupts would be able to perform such events and thus would use interrupts. Yates teaches the basic functionality interrupts which can be applied to the teachings of Holmberg.

As per **claim 13**, Holmberg teaches the method of claim 1.

Holmberg does not teach routines.

Yates discloses wherein the portion of code associated with the instruction includes at least one of instructions of a same class of instructions as the instruction and instructions within a same method or routine as the instruction (See figure 3B-3F: Instructions are grouped together by type and are handled in routines as a group).

Routines are well known in the art and have been used in basic computer programming. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Holmberg with Yates to encompass routines. Holmberg already recognizes that computer have periodic and recurrent sets of instructions (See column 2, lines 30-36). Routines would thus be able to exist within the basic framework of the invention taught by Holmberg. Yates is used to show how routines are used. One having ordinary skill in the art would recognize the usefulness of routines and apply them to the teachings of Holmberg.

As per **claims 20, and 24-27**, the claims are directed to similar limitations as claims 6, and 10-13, with the exception that the claims are directed to a computer program product in a recordable-type computer readable medium for processing instructions instead of a method in a data processing system for processing instructions.

Conclusion

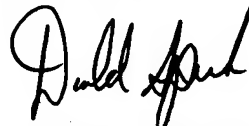
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Lai whose telephone number is (571) 272-6749. The examiner can normally be reached on M-F 8:00-5:30 (First BiWeek Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vincent Lai
Examiner
Art Unit 2181

A handwritten signature in black ink, appearing to read "Donald Sparks", written over a horizontal line.

DONALD SPARKS
SUPERVISORY PATENT EXAMINER

vi
May 25, 2007